***BY ORDER OF THE COMMANDER***
***HOLLOMAN AIR FORCE BASE***

***HOLLOMAN AIR FORCE BASE***
***INSTRUCTION 40-201***

***6 OCTOBER 2011***

*Medical Command*

# *CONSOLIDATED RADIOACTIVE MATERIAL MANAGEMENT AND IONIZING RADIATION PROGRAM*

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Certified by: 49 MDG/CC
(Colonel William A. Thomas)

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This instruction provides guidance, procedures, precautionary measures, and responsibilities for the control of ionizing radiation on Holloman Air Force Base. It implements AFI 40-201, *Managing Radioactive Materials in the US Air Force*. It sets up approval and coordination procedures and gives direction for proper licensing of radioactive materials. It gives guidance for the transportation, handling, storage, possession, and disposal of radioactive materials on Holloman AFB, excluding disaster control operations. This document applies to all assigned, attached, and associate units who possess, use, or handle sources of ionizing radiation, including x-ray units, within the confines of Holloman AFB. For contracts requiring performance of such services on Holloman AFB, the requiring activity shall incorporate this instruction and its requirements within the Performance Work Statement or Statement of Work. Ensure that all records created as a result of processes prescribed in this publication are maintained in accordance with Air Force Manual (AFMAN) 33-363, *Management of Records*, and disposed of in accordance with Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS) located at **https://www.my.af.mil/afrims/afrims/afrims/rims.cfm.** Contact supporting records managers as required. Refer recommended changes and questions to the Office of Primary Responsibility (OPR) using AF Form 847, *Recommendation for Change of Publication*, to 49th Aerospace Medicine Squadron Bioenvironmental Engineering Flight (49 AMDS/SGPB), 280 First Street, Holloman AFB, NM 88330-8273.

# CHAPTER 1

## GENERAL

**1. General.** Radioactive materials and ionizing radiation producing devices (RPD) have many beneficial uses in industrial applications, construction, armament development and testing, and research. Such materials and equipment may be directly or indirectly hazardous to personnel by virtue of their potential to cause serious biological damage to body tissues and organs and are of significant concern with respect to protection of the environment. Federal regulations set specific limits for exposure to ionizing radiation (or dose equivalent), which include keeping all exposures "As Low As Reasonably Achievable" (ALARA). When the term "base" is used in this instruction, it includes all areas under Holloman control or jurisdiction unless otherwise noted.

## CHAPTER 2

## OBJECTIVE

**2. Objective.** The objective of this program is to minimize health and safety exposures while utilizing ionizing radiation emitting equipment.

## CHAPTER 3

## RESPONSIBILITIES

**3. Responsibilities.**

3.1. **Commander, 49th Wing (49 WG/CC), or Designated Representative**

3.1.1. Appoints, in writing, a qualified Base Radiation Safety Officer (RSO).

3.1.2. Delegates the authority to the installation RSO to suspend installation operations involving radioactive materials that pose a significant health risk to personnel, are in clear violation of regulations or requirements, or can negatively impact AF operations, materiel, or real estate.

3.1.3. Approves and supports requirements set forth in this instruction to ensure compliance with Air Force, state, and federal regulations.

3.2. **49th Contracting Squadron (49 CONS/CC)**

3.2.1. Notifies Base RSO when contractors propose to use equipment with radioactive sources.

3.2.2. Ensure provisions of **Attachment 3** and **Attachment 4** are included in Statements of Work (SOW) or Performance Work Statements (PWS) for contracts that may use Radioactive Material (RAM).

3.2.3. Coordinate with Bioenvironmental Engineering (BE) Flight in any pre-performance conference involving contractor use of RAM.

3.3. **49th Medical Group Commander (49 MDG/CC)** - Director of Base Medical Services:

3.3.1. Recommends to 49 WG/CC removal of radiation workers from duties involving radiation exposure if Nuclear Regulatory Commission (NRC) radiation exposure limits are exceeded.

3.3.2. Implements duties listed under paragraph 3.4. as applicable.

3.4. **49 WG Tenant and Unit Commanders**

3.4.1. Monitor workplace enforcement of this instruction, compliance with terms and conditions of USAF RAM permits and other restrictions/requirements imposed by the Base RSO.

3.4.2. Appoint unit RSOs in writing for workplaces that use, handle, or store RAM or ionizing RPDs. Ensure unit RSO meets requirements set by Base RSO and regulatory guidance.

3.4.3. Contact Base RSO for guidance on whether a RAM permit is required if using RAM.

3.4.4. Procure protective equipment required by Base RSO or BE Flight for safe use of ionizing radiation. Refer questions regarding the need for specific equipment items to BE Flight or the Base RSO.

3.4.5. Monitor performance of support contractors IAW AFI 63-124, *Performance Based Services Acquisition,* assigning Quality Assurance Evaluators as directed by the supporting contracting office.

3.4.6. Appoint a unit Thermoluminescent Dosimetry (TLD) Manager.

3.5. **Base Radiation Safety Officer**

3.5.1. Implements and executes requirements described in AFI 40-201, AFI 48-148, *Ionizing Radiation Protection,* and AFMAN 48-125, *Personnel Ionizing Radiation Dosimetry*.

3.5.2. Serves as primary point of contact for all radiation safety matters and acts as approval authority for on base contracting operations involving the use of RAM.

3.5.3. Develops or reviews training provided to Unit RSO. Provides training, as requested, to ensure Unit and Permit RSO are knowledgeable of requirements, responsibilities and hazards.

3.5.4. Ensures personnel authorized to use ionizing RAM are briefed annually on relevant hazards, the radiation protection program, and the use of radiation protection equipment.

3.5.5. Reviews plan and design specifications for use of RAM or radiation producing equipment.

3.5.6. Performs an annual radiation protection inspection of each USAF RAM source.

3.5.7. Takes action to terminate uses of RAM and ionizing RPDs by any user on Holloman AFB when conditions of use are found to be unnecessarily detrimental to health and safety of users, observers or general public.

3.5.8. Notifies the USAF Radioisotope Committee on incidents, accidents, or permit violations.

3.5.9. Reviews the Radiation Safety and ALARA program annually, and provides annual briefings to the 49 AMDS Aeromedical Council and the 49 WG Safety and Health Council.

3.5.10. Reviews and approves members' use of USAF RAM permits.

3.5.11. Oversees the Base TLD Program.

3.5.12. Appoints the BE Flight TLD Program Manager.

3.5.13. Establishes the Base ALARA investigational levels (See **Attachment 2**).

3.6. **Bioenvironmental Engineering Flight Personnel**

3.6.1. Determine those persons who are occupationally exposed to ionizing radiation and require monitoring under the TLD program.

3.6.2. Enroll occupationally exposed persons in the USAF Personnel Dosimetry Program.

3.6.3. Brief personnel on the hazards of ionizing radiation and the use, care, and handling of the dosimeters at the time of initial enrollment in the program. Brief female workers

in proximity to radiation sources on the hazards of radiation during pregnancy and procedures to follow if pregnant.

3.7. **BE Flight TLD Program Manager**

3.7.1. Exchanges badges and forwards them to the USAF School of Aerospace Medicine (USAFSAM) Brooks City-Base, Texas, for processing.

3.7.2. Prior to the exchange, provides to each area TLD monitor a copy of the area's USAFSAM Listing 1523, Dosimetry Data.

3.7.3. Along with the area TLD monitor, will reconcile all changes and account for all missing badges before the old badges are turned over to BE Flight and before the new badges are released to the area TLD monitor.

3.7.4. Receive, review, and maintain in the BE Flight office files the USAFSAM Listings 1499-1, Occupational Radiation Exposure Report (Current) and USAFSAM Listings 1499-2, Occupational Radiation Exposure Report (Summary), until the AF Form 1527-1, *History of Occupational Exposure to Ionizing Radiation*, is received.

3.7.5. Receive AF Form 1527-1 from USAFSAM for personnel enrolled in the program and forward to Outpatient Records for posting in the medical records.

3.7.6. Forward a copy of the USAFSAM Listings 1499-1 and 1499-2 along with the names of respective unit personnel whose TLD results exceeded abnormal exposure or overexposure action levels to the appropriate TLD monitor and/or unit RSO.

3.7.7. Perform radiation protection inspection as part of routine surveillance process per AFI 48-145, *Occupational and Environmental Health Program*.

3.8. **Permit Radiation Safety Officers**

3.8.1. Are appointed in writing by the Commander, USAF Radioisotope Committee (RIC) Radioactive Materials (RAM) Permits (hereto referred to as “permit”), and approved by the RIC.

3.8.2. Follow all requirements specified in the permit.

3.8.3. Obtain training by Base RSO and follow all provided instructions.

3.8.4. Maintain an inventory of calibrated radiation monitoring equipment used by the unit that allows routine radiological surveillance as well as immediate response to emergency situations.

3.8.5. Ensure compliance with AFI 40-201, paragraphs 3.7. and 3.8., in their entirety when RAM is transferred or shipped.

3.8.6. Comply with the provisions of 10 CFR Part 35 if a medical permittee.

3.9. **Unit Radiation Safety Officers (RSO)**

3.9.1. Obtain training by Base RSO or BE Flight technician assigned by Base RSO on radiation safety hazards and responsibilities.

3.9.2. Ensure all new equipment containing RAM or RPD is coordinated with the permit and Base RSO.

3.9.2.1. Receive Base RSO approval of equipment containing RAM at least 60 days prior to planned arrival on Holloman AFB. Equipment use and storage may be impacted if a permit is required and not enough time is allotted for the submission and approval.

3.9.2.2. Receive Base RSO approval for the use of any RPD by government personnel prior to use. This includes medical, industrial and test uses.

3.9.2.3. May serve as Quality Assurance Evaluator IAW AFI63-124 as designated by the unit commander to monitor and ensure contractor compliance with **Attachments 3** and **4** of this instruction. This pertains to industrial and medical units.

3.9.3. Ensure personnel properly use, store and exchange TLD devices in a timely manner as described by the BE Flight TLD Program Manager.

3.9.4. If required by RAM permit or Base RSO, author a workplace specific radiation safety operating instruction which includes safety controls, use of TLDs, and emergency response procedures.

3.9.5. If a medical unit RSO, develop operating instructions stating unique identification methods, testing procedures, pass/fail criteria, documentation (i.e., device tagging and audit outcome) and proper procedures for disposal of rejected lead protective material as described in AFI 48-148.

3.9.6. Provide and record initial and annual radiation safety training to workers.

3.9.7. Immediately notify the Base RSO of incidents, accidents, or unusual circumstances involving ionizing radiation sources or equipment. This includes loss or theft of sources, personal injury, etc. (The BE Flight Primary On-Call technician can be reached through the command post after duty hours.).

3.10. **Workplace Supervisors**

3.10.1. Enforce this instruction and other restrictions/requirements recommended by the Unit RSO, Base RSO, or permit. For contractor personnel, notify the assigned government Quality Assurance Evaluator of any non-compliance. Do not direct the contractor.

3.10.2. Obtain and make available safety equipment necessary for the safe use of ionizing radiation sources and equipment.

3.10.3. Provide results of dosimetry measurements to workers promptly upon receipt and provide signed confirmation of receipt back to Base RSO.

3.10.4. Ensure initial and annual radiation safety training are provided to users of RAM and ionizing radiation producing equipment; ensure training is documented.

3.10.5. Submit requests for radioactive waste disposal to BE Flight (49 AMDS/SGPB).

3.10.6. Ensure all contractors working for or in the workplace follow the contractor-specific instructions detailed in this instruction.

3.10.7. Ensure no RAM shipments are accepted until the Base RSO/BE Flight has confirmed that they can be accepted, they are not leaking, and they conform to Department of Transportation (DOT) regulations.

3.11. **Units that Receive, Store, Ship, or Dispose of RAM**

3.11.1. Immediately notify Base RSO with all confirmed or suspected RAM prior to accepting unless pre-coordinated through internal standard operating procedures approved by Base RSO.

3.11.2. Ensure all shipped or received RAM meets DOT requirements.

3.12. **Area TLD Monitors**

3.12.1. Ensure all workers from shops on the TLD program make an appointment with and report to BE Flight so they can be enrolled in the program.

3.12.2. Notify BE Flight by telephone of personnel departing Holloman AFB for permanent change of station (PCS), separation, or retirement, so clearing procedures can be accomplished.

3.12.3. Provide a TLD storage rack/board capable of storing TLDs for all department ionizing radiation sources.

3.12.4. Ensure the TLD badge, when not worn during work, is stored at the storage rack. Storage in areas other than the designated rack (for example, desk drawers, clothing, vehicle glove compartments, etc.) is prohibited as such actions may affect results.

3.12.5. Brief all personnel on the requirements of the dosimetry program and ensure personnel comply with the requirements of wearing the badge and returning the badge to the storage rack when departing the immediate work area.

3.12.6. Notify BE Flight of any TLD wearer being employed in a second job that involves ionizing radiation.

3.12.7. Notify BE Flight of any TLD wearer on temporary duty (TDY) that may be exposed to ionizing radiation and will require the TLD.

3.12.8. Ensure all TLDs are present and accounted for during the BE Flight monthly/quarterly exchange. Report instances where TLDs cannot be located to the section superintendent.

3.12.9. Update the USAF/SDRD listing with any additions, deletions, or name changes prior to the badge exchange.

3.13. **Personnel Enrolled in the TLD Program**

3.13.1. Store TLDs, when not worn, on the designated storage board with the control TLD. Storage elsewhere will affect results.

3.13.2. Wear TLDs whenever performing primary duties that may expose them to ionizing radiation, including TDYs.

3.13.3. Wear TLD outside of normal clothing but beneath any leaded aprons or other whole body protective clothing used.

3.13.4. Do not wear TLD at any time when receiving diagnostic or therapeutic x-rays.

3.13.5. Do not hold patients during x-raying. (Family members may hold patients. If this isn't possible, then non-occupationally exposed Medical Technicians should hold the patient.).

## CHAPTER 4
## ADMINISTRATION

### 4. Personnel Monitoring, Surveillance and As Low As Reasonably Achievable

4.1. This instruction describes the administrative organization for radiation safety and provides written policy and procedures to foster the ALARA concept as required by AFI 91-204, *Safety Investigations and Reports*, AFI 40-201, AFI 48-148, AFMAN 48-125, applicable sections of 10 CFR and the conditions of USAF RAM permits issued to units on Holloman AFB.

4.2. If designated by Base RSO, military and government civilian employees will be placed in the USAF Personnel Dosimetry Program, which requires wearing personal dosimetry devices. They may also be required to submit bioassay specimens for laboratory analysis, or undergo lung or whole body counting. Determination of who is placed on the program is based on exposure criteria and work functions. Workers who have the potential to exceed 10 percent of established levels of dose equivalent will be entered in to the program.

4.3. Contract personnel are monitored through their own occupational safety program unless specified in the contract and agreed/coordinated by 49 AMDS/SGPB, 49 AMDS/CC and 49 MDG/CC. See **Attachment 3** and **Attachment 4**.

## CHAPTER 5
## TRAINING

**5. Training.**

5.1. Workplace supervisors are responsible for scheduling and documenting training and maintaining records of training for each employee. Radiation safety training will be documented by the supervisor IAW AFI 91-301, *Air Force Occupational and Environmental Safety, Fire Prevention and Health (AFOSH) Program*, on the Air Force Form 55, *Employee Safety and Health Record*. Training records must be retained for at least three (3) years and must document subjects covered and dates training was provided.

5.2. The Base RSO or designated representative will provide training to Unit RSOs who then provide the required training to other employees assigned to the workplace. BE Flight will provide a training outline upon request to assist unit RSOs with developing a workplace-specific training plan and outline.

5.3. Contractors are required to provide their own training. Contractor specifications or other appropriate documents must require contract employees who use or handle ionizing radiation sources to have appropriate training as required by state and federal requirements.

5.4. Upon request, BE Flight may provide training required for sealed-source type permits and non-medical x-ray sources when resources do not exist locally to provide this training.

5.5. Training may be performed in-house by the Unit RSO if the training plan is approved by the Base RSO. Forward a copy of training records to BE Flight within 30 days after training is provided.

## CHAPTER 6
## REQUIREMENTS

**6. New Equipment or Facility Requirements.**

6.1. All non-medical ionizing RPDs must be evaluated by 49 AMDS/SGPB for potential hazards prior to first time use. Therefore, the user, supervisor, or unit RSO must send a request to 49AMDS/SGPB at least **30 days** prior to the desired use date.

6.2. All medical ionizing radiation equipment must be evaluated by a qualified medical equipment repair center (MERC) technician or biomedical equipment technician (BMET) and potentially a Medical Physicist prior to first time use as described in AFI 48-148 and AFI 40-201.

6.3. Radioactive Material RAM Containing Devices:

6.3.1. All RAM must be either HQ USAF permitted, exempt by the Nuclear Regulatory Commission and the RIC, or generally licensed. Furthermore, it must be approved by the Base RSO prior to arrival or use on Holloman AFB. Contractors see **Attachment 3** and **Attachment 4**.

6.3.2. The Base RSO will provide direction based on the specific type, quantity, and use of RAM involved. Any RAM not exempt, generally licensed, or already possessing a permit will need a RIC permit prior to use on Holloman AFB. New permits generally require 60 days.

6.3.3. Provide the following information when contacting the Base RSO for guidance. The Base RSO will provide guidance based on AFI 40-201, AFI 48-148, and current policy letters.

6.3.3.1. Type and quantity of material.

6.3.3.2. Copy of permit.

6.3.3.3. Specific days and location plan to use if temporary.

6.3.3.4. Specific location/purpose of use if permanent or long-term.

6.3.3.5. Location plan to store (if applicable).

## CHAPTER7
## REPORTING

**7. Reporting Accidents and Incidents.**

7.1. Individuals or supervisors must promptly report damage, loss, or theft of RAM sources, uncontrolled releases of RAM and actual or suspected exposures to 49 AMDS/SGPB upon discovery IAW AFI 40-201, paragraph 3.12, and AFI 48-148, 3.5, 4.14, 5.2. A partial list of reporting criteria is as follows:

7.1.1. Actual or suspected exposure to external radiation in excess of 50 milliRoentgen (mR) in a single event.

7.1.2. Actual or suspected inhalation, ingestion, injection, or absorption of any RAM.

7.1.3. Observed leakage from RAM storage containers or equipment.

7.1.4. Any situation that violates the conditions of a USAF RAM permit or could lead to a violation.

7.1.5. Actual or suspected uncontrolled release of any quantity of RAM to the environment.

# CHAPTER 8
# STORAGE

**8. Radioactive Material Storage.**

8.1. RAM and RAM waste will be stored only in areas designated by the Base RSO. Guidance is provided in AFI 40-201, AFI 48-148 and RIC permits and are dependent on type, quantity, and purpose of storage. New storage requests must be submitted to the Base RSO at least 30 days prior to the required storage date.

8.2. More than 100 electron tubes containing exempt quantities of RAM together in one location may be considered radioactive storage. However, some electron tubes can be disposed of as normal trash. Contact the Base RSO for additional information.

## CHAPTER 9
## DISPOSAL

**9. Low Level Radioactive Waste (LLRW) and Commodities Disposal.**

9.1. The owner is responsible for maintaining custody of all LLRW items until disposition instructions are approved by the Base RSO. The LLRW must be secured in a manner approved by the Base RSO pending disposal.

9.2. The owner of the LLRW is responsible for initiating requests for disposal of LLRW in accordance with TO 00-110N-2, AFI 40-201, and other applicable directives. If no applicable directive exists, contact the Base RSO.

9.3. All LLRW and commodities disposal must be controlled/managed as described by a RIC permit for a specific waste and/or AFI 40-201.

9.4. Contact Base RSO any time an item suspected to contain RAM or radioactive waste is found unless Base RSO approved procedures and/or a permit is already in-place.

## CHAPTER 10
## EMERGENCIES

**10. Emergencies Involving Radioactive Materials:**

10.1. Any incident involving radioactive materials must be reported to 49 WG Command Post (ext. 572-7575). The Command Post will notify the Base RSO immediately by phone or pager. If Base RSO is unavailable, contact Bioenvironmental Engineering Services on-call technician through the Fire Protection Flight Alarm Room (ext. 572-7228) or Hospital Same Day Clinic (ext. 572-3260).

10.2. Control of the emergency and treatment of any injured patients will be the highest priority. The Base RSO, with on-scene commander approval, is authorized to require emergency actions of all 49 WG and tenant organizations to control the spread of contamination and assist in patient treatment.

10.3. Emergencies involving radioactive materials will be reported to the USAF Radioisotope Committee as outlined in AFI 40-201. The Base RSO and Bioenvironmental Engineering personnel are authorized to conduct this reporting as specified in AFI 40-201.

10.4. Accidents involving a known or suspected threat to public health will be reported to the New Mexico Department of Public Safety through 49 WG Public Affairs office. As much information as possible will be provided to civilian authorities IAW AFI 40-201 without compromising classified information. The on-scene commander and the Base RSO are authorized to provide 49 WG Public Affairs with information to be released about the accident.

DAVID A. KRUMM Colonel, USAF
Commander

**Attachment 1**

**GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION**

***References***

AFMAN 48-125, *Personnel Ionizing Radiation Dosimetry,* 7 Aug 2006

AFI 40-201 *Managing Radioactive Materials in the US Air Force,* 16 Mar 2011

AFPD 48-1, *Aerospace Medical Program*, 3 Oct 2005

AFI 48-145, *Occupational and Environmental Health Program*, 5 Mar 2008

AFI 48-148, *Ionizing Radiation Protection,* 12 Oct 2001

AFI 63-124, *Performance Based Services Acquisition (PBSA),* 1 Aug 2005

AFI 91-204, *Safety Investigations and Reports,* 24 Sep 2008

Title 10, Code of Federal Regulations (10 CFR), *Energy*

Title 40 Code of Federal Regulation (40 CFR), *Protection of Environment*

Title 49 Code of Federal Regulation (49 CFR), *Transportation*

T.O. 00-110N-2, *Radioactive Waste Disposal,* 22 Jun 1988

T.O. 00-110N-3, *Requisition, Handling, Storage, and Identification of Radioactive Materials*, 15 Aug 1996

***Abbreviations and Acronyms***

**ALARA**—-As Low As Reasonably Achievable

**CFR**—-Code of Federal Regulations

**DOE**—-Department of Energy

**DOT**—-Department of Transportation

**LLRW**—-Low level radioactive waste

**NRC**—-Nuclear Regulatory Commission

**OSHA**—-Occupational Health and Safety Administration

**Permit**— --USAF Radioisotope Committee Radioactive Material Permit

**RAM**—-Radioactive materials

**RIC**—-USAF Radioisotope Committee

**RPD**—-Radiation Producing Device

**RSO**—-Radiation Safety Officer

**TLD**—-Thermoluminescent Dosimeter

**Prescribed Forms.**

AF Form 1527-1, *History of Occupational Exposure to Ionizing Radiation*

NRC Form 241, *Report of Proposed Activities in Non-Agreement States, Areas of Exclusive Federal Jurisdiction, or Offshore Waters***.**

SF 600, *Health Record-Chronological Record of Medical Care*

USAFSAM Listing 1523, *Dosimetry Data*

USAFSAM Listing 1499-1, *Occupational Radiation Exposure Report (Current)*

USAFSAM Listing 1499-2, *Occupational Radiation Exposure Report (Summary)*

**Adopted Forms.**

AF Form 847, *Recommendation for Change of Publication*

***Terms***

**Abnormal Exposure**—An exposure received in any monitoring period that, if continued at the same rate, would exceed the limits specified in 10 CFR. Determine an abnormal exposure dose equivalent by dividing the applicable (stochastic or nonstochastic) annual limit by the number of monitoring periods during the year. For stochastic exposures, an abnormal exposure is 417 millirem (mrem) [4.2 milliSievert (mSv)] for any monthly monitoring period and 1250 mrem (12.5 mSv) for any quarterly monitoring period.

**ALARA (As Low As Reasonably Achievable) Program**—A set of management and administrative actions taken to reduce personnel radiation exposures to as low as reasonably achievable. The ALARA concept was developed in response to scientific evidence that suggests that no level of ionizing radiation exposure is totally risk free.

**ALARA Action Level**—Locally established radiation exposure limits for personnel dosimetry results that are less than the Air Force established criteria used to flag exposures that are above normal, higher than expected, or could potentially result in an abnormal exposure if trends continue. Informal investigation is conducted by permit RSO to determine the specifics of the exposure, such as change in workload, tasks, or position. Results are reported to the Radiation Safety Committee.

**Area TLD Monitor**—Person assigned by the unit or section responsible for enforcing Operating Instructions/Standards of the TLD program for that unit or area.

**TLD—Thermoluminescent Dosimeter--**The personnel dosimeter is used to indicate a close approximation of the exposure dose to ionizing radiation to ensure exposures are maintained ALARA. The badge contains a thermoluminescent dosimetry packet. The packet is exchanged monthly or quarterly depending on the area where an individual works.

**Pregnant Worker Action Level**—Personnel dosimetry result which, if continued for the term of pregnancy, would exceed the 500 mrem/9 month exposure limit for the fetus. This equates to approximately 55 mrem on a monthly TLD.

## Attachment 2

## ALARA INVESTIGATIONAL LEVELS

**Table A2.1. Exposure and Alara Threshold Levels**

| Exposure Type | ALARA Threshold Level |
|---|---|
| Total Effective Dose Equivalent | 10 mrem/quarter<br>10 mrem/month (pregnant worker)<br>40 mrem/year |
| Total Effective Dose Equivalent | 10 mrem/quarter<br>10 mrem/month (pregnant worker)<br>40 mrem/year |

1. ALARA Investigational threshold levels were determined by trend analysis from 2007-2009. A formal investigation IAW chapter 9 of AFMAN 48-125 *Personnel Ionizing Radiation Dosimetry* will be conducted by the base RSO or designated representative when levels exceed the above values.

2. Exposures exceeding 5 mrem/quarter will initiate an informal investigation to verify proper ALARA principles are being followed. Informal investigations will be briefed at the Aerospace Medicine Council (AMC).

## Attachment 3

## NON-AIR FORCE ORGANIZATIONS/CONTRACTOR REQUIREMENTS

**A3.1.** Non-Air Force organizations/contractors performing services involving use of their own RAM or ionizing RPD under the auspices of their own USNRC or Agreement State License shall:

A3.1.1. Send a request to the Base RSO at least **30 calendar days,** or as soon as notified/contracted if less than 30 days, before bringing/conducting operations involving RAM or RPD onto Holloman AFB. Per AFI 40-201, requests must be in writing and include:

A3.1.1.1. A brief description of the proposed activities.

A3.1.1.2. A copy of a current NRC or Agreement State license with current NRC Form 241, *Report of Proposed Activities in Non-Agreement States, Areas of Exclusive Federal Jurisdiction, or Offshore Waters* specifying specific use locations. The NRC Reciprocity Form (NRC Form 241) must accompany the Agreement State license. The license must either specifically list the installation or grant approval for work at temporary job sites anywhere in the United States where the NRC or Agreement State has jurisdiction. **NOTE:** Operations on property that is not exclusive federal jurisdiction will need to pay reciprocity. Likewise, State licensees may not work on Air Force or other installations where exclusive federal jurisdiction exists unless pre-coordinated and reciprocity is paid to the NRC.

***EXCEPTION:*** Contractors using generally licensed materials (e.g., certain NITON Lead Paint Analyzers) and DoE or DoE prime contractors operating in accordance with 10 CFR Part 835 do not require an NRC license or NRC Form 241. However, the Base RSO must receive written certification from DoE organizations or DoE prime contractors that they are exempt from NRC license requirements.

A3.1.1.3. Name, local address, and telephone number for the responsible local representative.

A3.1.1.4. Name, address, and telephone number of the permit or organization RSO named on their license.

A3.1.1.5. Copy of the Air Force contract describing work to be done at the installation and the inclusive dates of the work.

A3.1.1.6. An acknowledgement that the Base RSO can make periodic checks to ensure that contractor personnel follow radiation safety practices to prevent exposures to Air Force personnel and avoid contamination of government property.

A3.1.1.7. Acknowledgement that the Base RSO has authority to suspend contractor operations believed to be unsafe.

**A3.2.** Organizations who regularly perform work on Holloman AFB using RAM containing or RPD can perform a modified version of the above procedures if a Memorandum of Agreement or Understanding is in-place between that organization and the RSO.

**A3.3.** Once approved by the Base RSO, the contractor shall:

A3.3.1. Ensure they educate all personnel on correct emergency response procedures.

A3.3.2. Provide proof of certification for transportation, as requested.

A3.3.3. Remove RAM daily unless a storage location is identified by contractor, appropriately labeled/controlled by contractor, and approved by Base RSO.

A3.3.4. Meet state certification requirements for all RPD on non-federal jurisdiction property.

A3.3.5. Meet all appropriate DOT, OSHA, NRC, and California occupational health requirements.

## Attachment 4

## CONTRACTOR REQUIREMENTS UNDER AF RAM LICENSES

**A4.1.** This section addresses contractor organizations performing services involving use of RAM or ionizing radiation producing device (RPD) under the auspices of an AF permit or using AF owned equipment.

**A4.2.** Contractor shall maintain all occupational health support for employees, specifically the use of personnel dosimeters (health risk assessment measurement), except those pertaining to public dose or AF/government employee exposure, occupational health physicals, training, and personal protective equipment such as lead aprons. Exceptions may be made on a case-by-case basis when coordinated and approved by 49 AMDS/SGPB.

**A4.3.** Contractor shall appoint and obtain Unit RSO training for an individual in their organization to serve as Unit RSO. The appointment shall be made in writing by the Squadron Commander or equivalent. Contact 49 AMDS/SGPB to obtain training materials relevant to the situation.

**A4.4.** Contractor will maintain a permit folder as described in the Unit RSO training and in USAF RAM permit. Specifically, the contractor will ensure records are maintained in an orderly fashion as required by permit and kept on hand as required by AFI 40-201, Attachment 7, and must include:

A4.4.1. Inventories with explanation for all changes between inventories.

A4.4.2. Shipment paperwork. Ensure no RAM shipments are accepted unless the Base RSO has confirmed that they can be accepted, they are not leaking, and they conform to DOT regulations. (EXCEPTION: shipping documents are not required on the base proper.).

A4.4.3. Leak test results or letters referencing such results.

A4.4.4. Confirmation of annual training.

A4.4.5. Letters of Appointment for Unit and Permit RSO signed by the permit holder.

**A4.5.** In addition to local inspections, Air Force-level agencies must inspect permit holders for compliance with statements made in their permit application, conditions listed on the permit, Air Force directives and instructions, and applicable NRC and DOT regulations in 10 CFR and 49 CFR. The NRC may also conduct no-notice inspections and enforces administrative actions, fines, and criminal penalties against the Air Force or individuals as described in 10 CFR Part 2, Rules of Practice for Domestic Licensing Proceedings and Issuance of Orders. Appendix C, General Statement of Policy and Procedure for NRC Enforcement Actions, describes NRC's enforcement policy and the various enforcement options NRC may exercise.

**A4.6.** Contract monitor will incorporate permit requirements into contract performance audits.

**A4.7.** Contract monitor will ensure all deficiencies identified by Base or Permit RSO during annual or spot inspections are corrected within seven (7) working days.

**A4.8.** Contract monitor will ensure such deficiencies are reflected on contract performance reports.

**A4.9.** Contractor will support on-site spot inspections by Base or Permit RSO. Contractor will provide all documents requested by Base or Permit RSO within three (3) duty days.

**A4.10.** Contract Monitor, contractor Unit RSO, users, and shop supervisors will be available for questioning by the AF Inspector General, AF Radioisotope Committee, or Nuclear Regulatory Commission during any no-notice inspection.